IV. REMARKS/ARGUMENTS

A. Amendments to the Claims

The application now contains 25 claims.

Claims 1-7 have been cancelled from the present application without prejudice.

Claims 8-11 and 17-32 remain the same.

Claims 12-16 have been amended in order to better define the subject matter being claimed.

B. Statements of Rejection and Reply

Claims 1-7

In the Office Action, the Examiner has rejected claims 1-7 under 35 USC §102(e) as being anticipated by U.S. Patent 6,330,383 (hereafter referred to as Cai et al.). The Examiner has further rejected claim 7 under 35 USC §103(a) as being obvious over Cai et al. in view of U.S. Patent Application Publication US 2001/0008452 (hereafter to be referred to as Sugihara et al.)

Under the current amendment, claims 1-7 have been cancelled from the present application, and as such, the Examiner's rejections are rendered moot.

Claims 8-11

In the Office Action, the Examiner has rejected claims 8-11 under 35 USC §103(a) as being unpatentable over Cai et al. in view of Sugihara et al.

For the reasons presented below, the Applicant respectfully traverses the Examiner's rejection, and submits that claims 8-11 are in allowable form.

For ease of reference, independent claim 8 has been reproduced herein below:

> A dispersion discrimination and compensation system, comprising:
>
> a plurality of anti-dispersive elements, each having an input for receiving a respective first multi-channel optical signal and an output for providing a respective second multi-channel optical signal, each of said plurality of anti-dispersive element being adapted to apply dispersion compensation to the respective first multi-channel optical signal in response to receipt of a respective first control signal, thereby to produce the respective second multi-channel optical signal;
>
> **a front end selector (FES) having an FES output and also having a plurality of FES inputs each connected to the output of a respective one of said plurality of anti-dispersive elements, each FES input accepting a respective one of the plurality of second multi-channel optical signals, said FES being adapted to select an FES input from the plurality of FES inputs**, to select a single channel in the optical signal present at the selected FES input and to provide the selected channel to the FES output;
>
> a dispersion discriminator connected to the FES output and adapted to determine a dispersion characteristic of the optical signal present at the FES output, said dispersion discriminator being further adapted to generate a second control signal indicative of the dispersion characteristic of the optical signal present at the FES output; and
>
> a processor connected to said dispersion discriminator and to said plurality of anti-dispersive elements, said processor being adapted to generate, as a function of the second control signal, the first control signal for the anti-dispersive element whose output is connected to the selected FES input, thereby to exert feedback control of the dispersion compensation applied by that anti-dispersive element.

The Applicant respectfully submits that the references cited by the Examiner do not disclose, teach or suggest the invention of independent claim 8. More specifically, neither Cai et al. nor Sugihara et al. disclose the above-emphasized limitation of "a front end selector (FES) having...a plurality of FES inputs each connected to the output of a respective one of said plurality of anti-dispersive elements, <u>each FES input accepting a respective one of the plurality of second multi-channel optical signals</u>, said FES being adapted to select an FES input from the plurality of FES inputs".

Firstly, as conceded by the Examiner on page 4 of the Office Action, Cai et al. does not disclose a front end selector. As such, Cai et al. cannot satisfy the above-emphasized limitation of independent claim 8.

Secondly, the Applicant respectfully submits that Sugihara et al. does not disclose a front end selector (FES) that includes a plurality of FES inputs, wherein "each FES input accepting a respective one of the plurality of second multi-channel optical signals". In the Office Action, the Examiner argues that Sugihara et al. discloses a front end selector in the form of the combination of the optical switch 33 and the sweeping control section 34 shown in Figure 3. Even if this combination could be considered a front end selector, nowhere does the combination of the optical switch 33 and the sweeping control section 34 include a plurality of inputs wherein "each...input accepting a respective one of the plurality of second multi-channel optical signals".

Instead, the combination of the optical switch 33 and the sweeping control section 34 disclosed by Sugihara et al. is only capable of accepting either a plurality of single-channel optical signals, as shown in Figure 3, or a single multi-channel optical signal, as shown in Figures 5 & 6. Therefore, Sugihara et al. teaches having an individual front end selector (optical switch 33 and the sweeping control section 34) for each multi-channel optical signal being handled. Nowhere does Sugihara et al. disclose a front end selector having "a plurality of FES inputs" wherein "each FES input [accepts] a respective one of the plurality of second multi-channel optical signals".

As per section §2142 of the MPEP, in order to establish a *prima facie* case of obviousness, "the prior art references, when combined, must teach or suggest all the claim limitations". Since neither Cai et al. nor Sugihara et al. teach or suggest the above-emphasized limitation of independent claim 8, the Applicant respectfully submits that the combination of references cited by the Examiner fail

to establish a *prima facie* case of obviousness for independent claim 8. As such, the Examiner is respectfully requested to withdraw his rejection of independent claim 8.

Claims 9-11 depend from independent claim 8, and as such incorporate by reference all the limitations contained therein, including the above-emphasized limitation which has been shown to be absent from both Cai et al. and Sugihara et al.

Accordingly, for the same reasons as those presented above with respect to independent claim 8, the Examiner is respectfully requested to withdraw his rejection of dependent claims 9-11.

Claims 12-16

In the Office Action, the Examiner has rejected claims 12-16 under 35 USC §102(e) as being anticipated by Cai et al.

For the reasons presented below, the Applicant respectfully submits that independent claim 12, as amended, is in allowable form.

The Examiner's attention is respectfully directed towards the following limitation of independent claim 12, as amended.

> A method of compensating for dispersion present in multi-channel optical signals, comprising:
> applying an amount of dispersion compensation to a first plurality of multi-channel optical signals, thereby to produce a second plurality of multi-channel optical signals;
> **receiving said second plurality of multi-channel optical signals respectively at a plurality of inputs;**
> selecting a multi-channel optical signal from said second plurality of multi-channel optical signals;
> selecting a single channel from the selected multi-channel optical signal of the second plurality of multi-channel optical signals;
> determining a dispersion characteristic of the selected channel;

outputting from a common output, said dispersion characteristic of the selected channel; and

on the basis of the determined dispersion characteristic of the selected channel, regulating the amount of dispersion compensation applied to a multi-channel optical signal in the first plurality of multi-channel optical signal that corresponds to the selected second multi-channel optical signal.

The Applicant respectfully submits that the reference cited by the Examiner does not disclose, teach or suggest the invention described in amended claim 12. More specifically, the Applicant respectfully submits that Cai et al. does not disclose a method comprising "receiving [a] second plurality of multi-channel optical signals respectively at a plurality of inputs".

As conceded by the Examiner on page 4 of the Office Action, Cai et al. does not disclose "providing dispersion compensations for a plurality of multi-channel signals". As such, the Applicant respectfully submits that Cai et al. does not satisfy the above-emphasized limitation of "receiving a second plurality of multi-channel optical signals". The Applicant further submits that Cai et al. does not disclose the limitations of "selecting a multi-channel optical signal from said second plurality of multi-channel optical signals" and "selecting a single channel from the selected multi-channel optical signal of the second plurality of multi-channel optical signals", either. Instead, Cai et al. simply teaches a chirped fiber grating for achieving dispersion compensation in a single multi-channel optical signal.

Given that §2131 of the MPEP specifies that in order "to anticipate a claim, the reference must teach every element of the claim", the Applicant respectfully submits that Cai et al. is not sufficient to support an anticipation rejection of amended claim 12. Accordingly, the Examiner is respectfully requested to withdraw his rejection of independent claim 12.

The Applicant further submits that independent claim 12, as amended, also distinguishes over the combination of Cai et al. and Sugihara et al. More

specifically, neither Cai et al. nor Sugihara et al. disclose the sequence of steps that involves receiving a plurality of multi-channel optical signals at a plurality of inputs, selecting one of the plurality of multi-channel optical signals, selecting a single channel from the selected multi-channel optical signal, determining a dispersion characteristic of the selected channel, and then outputting the dispersion characteristic from a common output. As such, independent claim 12, as amended, is believed to be novel, non-obvious and in condition for allowance over the prior art cited by the Examiner.

Claims 13-16 depend from independent claim 12, and as such incorporate by reference all the limitations contained therein. Accordingly, for the same reasons as those presented above with respect to independent claim 12, the Examiner is respectfully requested to withdraw his rejection of dependent claims 13-16.

Claims 17-32

In the Office Action, the Examiner has rejected claims 17-32 under 35 USC §103(a) as being unpatentable over Cai et al. in view of Sugihara et al. in further view of U.S. Patent 6,445,841 (hereafter referred to as Gloeckner et al.)

The Applicant respectfully traverses the Examiner's rejection on the basis that the Examiner has failed to establish a *prima facie* case of obviousness.

For ease of reference, independent claim 17 has been reproduced herein below:

> A switch for optical signals, comprising:
> a plurality of optical input ports for accepting a first plurality of optical signals;
> a plurality of optical output ports for providing a second plurality of optical signals;
> a switch matrix connecting said plurality of optical input ports to said plurality of optical output ports; and
> a dispersion discrimination and compensation subsystem adapted to provide variable dispersion compensation to the first plurality of optical signals, thereby producing the second plurality of optical signals, wherein the dispersion compensation applied is regulated through a feedback loop.

According to §2142 of the MPEP, in order to establish a *prima facie* case of obviousness, there must be some suggestion, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings. More specifically, *as stated in ACS Hosptial Systems Inc. V. Monteffore Hospital 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed Cir 1984)* "Obviousness cannot be established by combining teachings of prior art to produce the claimed invention, absent some teaching or suggestion supporting combination".

Firstly, the Applicant respectfully submits that there is no motivation found in any of the references cited by the Examiner to suggest combining their reference teachings in order to arrive at the claimed invention. More specifically, there is no motivation found in either Cai et al. or Sugihara et al. to suggest combining their optical dispersion compensation systems with an optical switch, such as the one disclosed by Gloeckner et al. in order to arrive at the invention described in claim 17. In fact, the Examiner even states on page 5 of the Office Action "that Cai et al. in view of Sugihara et al. does not specifically teach to apply the disclosed dispersion compensation method to an optical switch as claimed". The Applicant further submits that there is nothing in Gloeckner et al. to suggest combining its optomechanical matrix switch with an optical dispersion compensation system, such as the ones disclosed by Cai et al. and Sugihara et al. If the Examiner disagrees with the Applicant, the Examiner is respectfully invited to indicate where in the references cited there is the motivation or suggestion to combine their reference teachings.

Secondly, the Applicant respectfully submits that there is nothing in the knowledge generally available to one of ordinary skill in the art that would suggest combining the teachings of the cited references, in order to arrive at the claimed invention. The mere fact that Gloeckner et al. discloses an optomechanical switch, and Cai et al. and Sugihara et al. disclose optical

dispersion compensation systems, is not sufficient to motivate one of skill in the art to combine their reference teachings. If the Examiner disagrees with the Applicant, the Examiner is respectfully invited to identify the principle that would be known to one or ordinary skill in the art to suggest the claimed invention. As stated in *In re Rouffet 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed Cir 1998)* "even when the level of skill in the art is high, the Board must identify specifically the principle known to one of ordinary skill, that suggests the claimed invention. In other words, the Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious".

Until the Examiner has identified where in the references cited, or in the knowledge generally available to one of ordinary skill in the art, there is the motivation or suggestion to combine the references cited, the Applicant respectfully submits that the Examiner has failed to establish a prima facie case of obviousness with respect to independent claim 17. Accordingly, the Applicant respectfully requests that the Examiner withdraw his rejection of independent claim 17.

Claims 18-32 depend from independent claim 17 and as such include by reference all the limitations contained therein. Since the Examiner has failed to establish a *prima facie* case of obviousness for independent claim 17, the Applicant respectfully submits that the Examiner has also failed to establish a *prima facie* case of obviousness for claims 18-32 which depend therefrom. Accordingly, the Applicant respectfully requests that the Examiner withdraw his rejection of dependent claims 18-32.

Claim 26

In the Office Action, the Examiner has rejected claim 26 under 35 USC §103(a) as being unpatentable over Cai et al. in view of Sugihara et al. in further view of Gloeckner et al. in still further view of U.S. Patent 6,625,341 (hereafter referred to as Novotny)

The Applicant respectfully re-iterates the argument presented above with respect to claim 17; namely that there is no motivation or suggestion found in the prior art references, or the knowledge generally available to one of ordinary skill in the art to combine Cai et al. and Sugihara et al. with Gloeckner et al. As such, the Examiner's rejection of dependent claim 26 is reduced to either the combination of (I) Gloeckner et al. and Novotny, or (II) Cai et al., Sugihara et al. and Novotny.

(I) With respect to the combination of Cai et al., Sugihara et al. and Novotny et al., the Applicant respectfully submits there is no motivation or suggestion found in any of these references to combine their reference teachings in order to arrive at the subject matter disclosed in dependent claim 26, which includes by reference all the limitations of independent claim 17.

More specifically, the Applicant respectfully submits that there is no motivation or suggestion found in either Cai et al. or Sugihara et al., to suggest combining their optical dispersion compensation systems with an optical switch of Novotny, in order to arrive at the subject matter of dependent claim 26. Nor is there any suggestion or motivation found in Novotny to suggest combining its optical cross connect switching array system with the optical dispersion compensation systems of Cai et al. and Sugihara et al., in order to arrive at the limitation of "a dispersion discrimination and compensation subsystem...wherein the dispersion compensation applied is regulated through a feedback loop".

As such, the combination of Cai et al., Sugihara et al. and Novotny fails to establish a *prima facie* case of obviousness with respect to dependent claim 26.

(II) With respect to the combination of Gloeckner et al. and Novotny, the Applicant respectfully submits that neither of these references disclose the following limitation of independent claim 17, from which claim 26 depends:

> **a dispersion discrimination and compensation subsystem adapted to provide variable dispersion compensation to the first plurality of optical signals, thereby producing the second plurality of optical signals, wherein the dispersion compensation applied is regulated through a feedback loop.**

Since both Gloeckner et al. and Novotny fail to disclose the above limitation of independent claim 17, and since claim 26 incorporates by reference all the limitations of claim 17, the Applicant respectfully submits that as per §2142 of the MPEP, the combination of Gloeckner et al. and Novotny fails to support a *prima facie* case of obviousness for claim 26.

In light of the arguments presented above, the Examiner is respectfully requested to withdraw his rejection of dependent claim 26.

CONCLUSION

In view of the above, it is respectfully submitted that claims 8-32 are in condition for allowance. Reconsideration of the rejections and objections is requested. Allowance of claims 8-32 at an early date is solicited.

If the claims of the application are not considered to be in full condition for allowance, for any reason, the Applicant respectfully requests the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims or in making constructive suggestions so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

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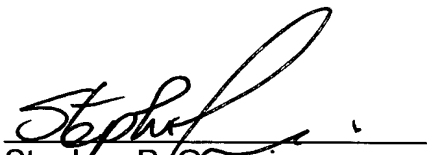

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